

ABSTRACT OF THE INVENTION

A method of forming a shallow trench isolation (STI) structure is disclosed. Instead of using a conventional chemical mechanical polishing (CMP), a wet etching is used in the present invention while forming a shallow trench isolation structure. By using the high selectivity of the wet etching, the thickness of the silicon nitride (Si_3N_4) layer and the oxide layer in the shallow trench isolation structure can be decreased or controlled, and the micro-scratch caused by the chemical mechanical polishing can be avoided.